Homestake Mining Company
(Barrick Gold Corp.)
Grants, New Mexico

EPA ID# NMD007860935
Site ID: 0600816

EPA Region 6
State Congressional District: 02
Contact: Sai Appaji
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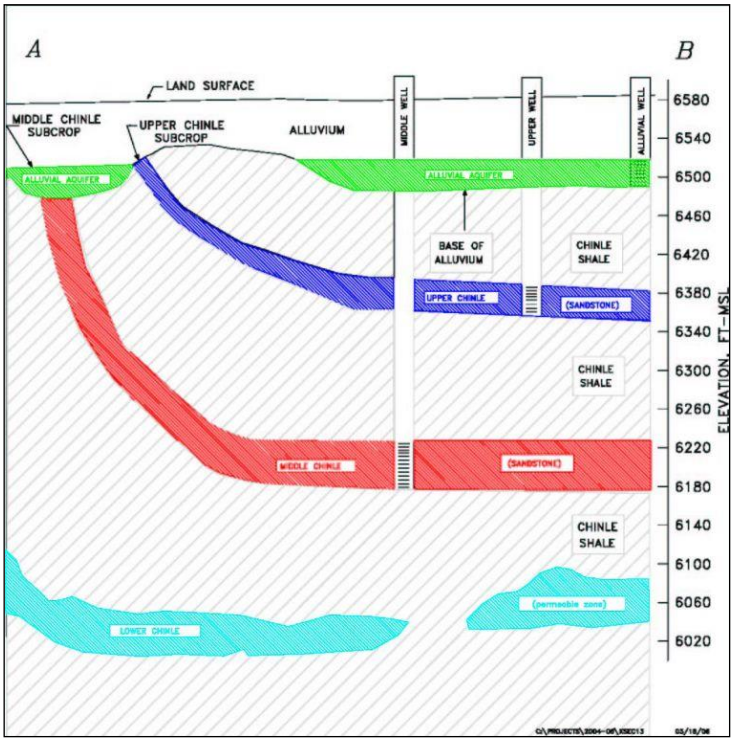
Last Updated: January 2015

Background

Homestake Mining Company (HMC) is located in Cibola County, New Mexico, approximately 5.5 miles north of the Village of Milan, at the intersection of Highway 605 and Country Road 63I. The Site includes the uranium mill site and the impacted portions of the underlying ground water aquifers, known locally as the San Mateo alluvial aquifer and the Upper, Middle and Lower Chinle aquifers.



Uranium milling operations at the Site began in 1958 under a license issued by the Atomic Energy Commission. Operations were originally conducted by two distinct partnerships, the Homestake-Sapin Partners and the Homestake-New Mexico. The Homestake-New Mexico Partnership dissolved in 1961, and the property was ultimately acquired by the Homestake-Sapin Partners. The name of the partnership was changed in 1968 to United Nuclear-Homestake Partners. In 1981, Homestake Mining Company purchased United Nuclear Corporation's interest, and the name changed to Homestake Mining Company - Grants. On December 4, 2001, HMC merged with Barrick Gold Corporation, and is a wholly owned subsidiary of the Barrick Gold Corporation (NRC 2002).

The mill was decommissioned and demolished from 1993 to 1995. The large tailings impoundment covers an area of about 200 acres and is approximately 85 - 100 feet high. It contains an estimated 21 million tons of mill tailings. The small tailings impoundment covers an area of about 40 acres and is 20 - 25 feet high. It contains approximately 1.2 million tons of mill tailings. Seepage from the two tailings impoundments has resulted in the contamination of the underlying ground water aquifers.

The primary contaminants and constituents of concern that are present in the ground water at the Site are uranium, selenium, radium-226 + radium-228, thorium-230, chromium, molybdenum, vanadium, sulfate, chloride, nitrate, and total dissolved solids (TDS) (Hydro-Engineering 2006). Radium-226 was the primary contaminant of concern present in the soil.

The major land use immediately proximal to the Site consists of residential development. There are five residential subdivisions located south and southwest of the mill site: Felice Acres, Broadview Acres, Murray Acres, Pleasant Valley Estates, and Valle Verde. Land near the Site is also used for agricultural and livestock purposes. Much of the land immediately surrounding the mill site to the north, east and west has been acquired over the years by HMC, and this property has not been put into use, except for installation of some infiltration trenches as a part of the ground water restoration program.

The current remedial program consists of a ground water collection/injection system for the San Mateo Alluvial aquifer and the Upper and Middle Chinle aquifers, tailings collection wells within the tailings impoundment, a tailings impoundment toe drain, and Reverse Osmosis Treatment Plant, and three evaporation ponds. During the end of 2010, the RO units treated an approximate average of 560 gpm of contaminated ground water. The collection wells, tailings wells and the toe drains have recovered over four billion gallons of contaminated ground water since 1977.

An average of two feet of contaminated soil were removed from the mill area and placed in the tailings impoundments. The depth of the soil excavation ranged between zero and up to about five feet. The completion of the final radon barrier and all other reclamation activities to secure the large tailings impoundment is scheduled for 2014. The completion of the final radon barrier and all other reclamation activities for containment of the small tailings impoundment are scheduled for September 2017.

The ROD resulted in the signing of the Memorandum of Understanding (MOU) in December 1993. The MOU stipulated that the NRC was the lead federal agency for this Site.

Current Status

The EPA completed the final Human Health Risk Assessment in December 2014. The EPA has completed report and responses to stakeholder comments are posted on the EPA webpage for the site. .

The EPA took removal action at ten properties in the subdivision south of the site. EPA installed radon mitigation systems in homes where indoor radon exceeded the EPA guidance of 4 pCi/L. The source of radon is still unknown. In October 2011, the EPA completed the third five-year review for the site. The review concluded that the remedy exclusive of OU3, is protective at the Site. The protectiveness determination for OU3 has been deferred pending completion of EPA's on-going risk assessment. A number of issues and recommendations were identified for each of the operable unit at the Site.

The EPA is actively working with the Bluewater Valley Downstream Alliance (BVDA) a community organization in providing assistance through the Technical Assistance for Superfund Communities (TASC) and Technical Assistance Grant (TAG) programs. The TASC and TAG programs will provide technical assistance to the community in reviewing technical reports.

Benefits

The initial action to connect the nearby residences to the municipal water supply provided a safe drinking water supply. In addition, the study on indoor radon levels showed that site contamination was not contributing to elevated indoor radon levels found in some area homes.

The contaminant plume has receded back almost 3/4 mile into the site boundaries of HMC by injecting fresh water down-gradient of the site. Nearly 4.5 billion gallons of contaminated water have been removed and 540 million gallons of treated water has been injected into the aquifer. The NRC is requiring that the Corrective Action Plan include clean-up of off-site contamination and require that the license be amended accordingly as well.

Reverse gradient injection has assured that contaminants in the ground water would not expand into the shallow aquifer, thus making the shallow water potentially usable in the down gradient areas. Once the tailings piles have been closed, the site will be transferred to DOE under general license.

National Priorities Listing (NPL) History

NPL LISTING HISTORY
Site HRS Score: 35.21
Proposed Date: 12/30/82
Final Date: 9/08/83
NPL Update: Original

Location: 5.5 miles north of Village of Milan in northwest New Mexico.

Population: Approximately 200 people live within a mile of the tailings piles.

Setting:

- Uranium mill
- Two tailings piles: a large pile covering 200 acres and 100 feet in height and a small impoundment covering 40 acres and 25 feet in height.
- Nearest residence is 3,000 feet away.
- Nearest drinking water well is 3,000 feet away.
- Threatened population in four subdivisions located 1/2 to two miles from tailings piles.

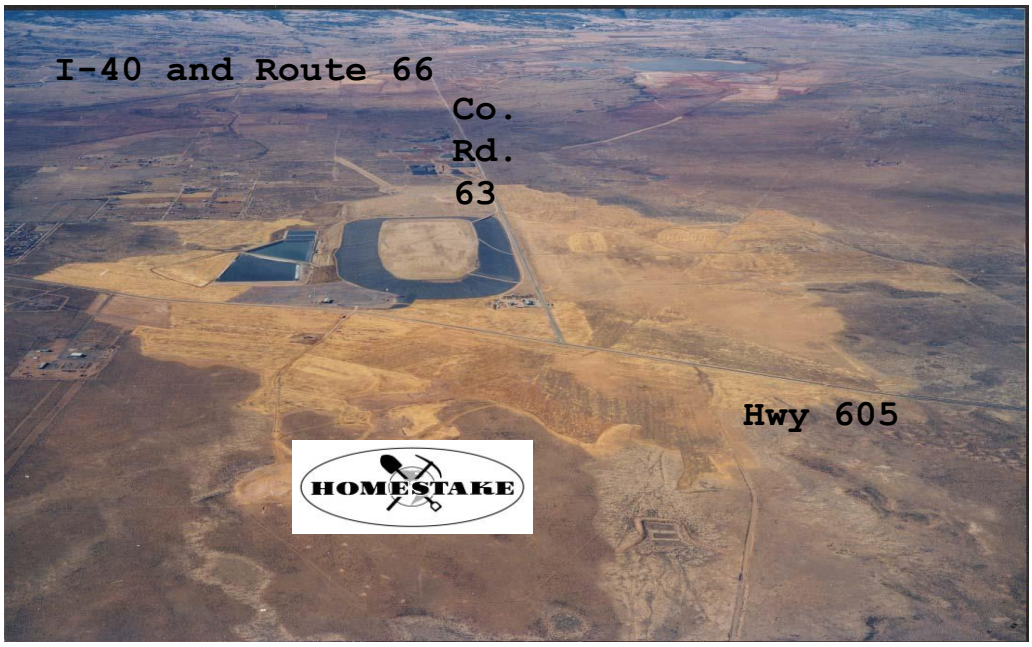
Hydrology:

- Tailings located on alluvium, overlying Chinle and San Andres aquifers.
- Alluvium used as domestic water supply; deeper San Andres is also an aquifer.
- Extensive injection/withdrawal system has altered shallow ground water flows and flushed alluvial and upper Chinle contamination under the State of New Mexico's Ground Water Discharge Plan (DP-200).

Principal Pollutants

- Alkaline mill tailings
- Radium-226
- Selenium
- Uranium
- Radon

Site Map



Human Health and Ecological Considerations

Several hundred people depended upon the shallow aquifer as a water supply; an alternate water supply was provided to nearby residences in 1985 by Homestake under an Agreement with EPA. More recently in 2009 HMC is providing hookups to residents in the affected area that are currently not on alternate water. The hookups are provided through an MOU between HMC and NMED.

Seepage from the two tailings piles has contaminated the alluvial aquifer and portions of the Middle Chinle, Upper Chinle and Lower Chinle aquifers.

Record of Decision

Signed: Consent Agreement in November 1983 (Ground Water)
No Action ROD September 27, 1989 (Radon)

Site Contacts

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EPA Region 6 Public Liaison	Donn R. Walters	214-665-6483 or 1-800-533-3508
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